

RECEIVED  
CENTRAL FAX CENTER

OCT 22 2007

Application No: 10/528,810  
Amendment A  
Reply to Office Action Dated 08/07/2007

Attorney Docket No: 3926.141

**IN THE CLAIMS:**

The following listing of claims replaces any earlier listing:

1. (currently amended) A method for observing and measuring the lateral environment of a vehicle, ~~mainly for detecting parking spaces,~~  
wherein a sequence of digital images are recorded by means of a camera, provided with a time stamp and buffered,  
wherein the vehicle's own movement is sensed in order to select chronologically overlapping stereoscopic image pairs from the buffered images on the basis of this data,  
wherein the position and orientation of the camera which are present at the two recording times are determined,  
wherein a local 3D depth image is generated on the basis of the image pairing by means of an algorithm for stereoscopic image processing, and  
wherein the position and orientation of the camera at the recording times are taken into account within the scope of a synthetic stereoscopic geometry, and  
only buffered images during whose recording the orientation of the camera has not changed significantly are selected to form image pairs.
2. (currently amended) The method as claimed in claim 1, wherein the vehicle's own movement is sensed, ~~in particular~~ on the basis of the speed, the number of revolutions of the wheel, navigation information or data from vehicle movement dynamics systems.
3. (previously presented) The method as claimed in claim 1, wherein buffered images are selected to form image pairs in such a way that the distance covered between the recording times of the images corresponds to a predefined value.

(WP430659;1)

- 2 -

Application No: 10/528,810  
Amendment A  
Reply to Office Action Dated 08/07/2007

Attorney Docket No: 3926.141

4. (currently amended) The method as claimed in claim 3, wherein the predefined value is preferably in the range between 0.2m and 1m, ~~in particular 0.3m.~~
5. (cancelled).
6. (currently amended) The method as claimed in claim 1, wherein a sequence of local 3D depth views are ~~accumulated~~ accumulated, wherein the image data of the individual local 3D depth views which can be assigned to the same location points in the environment of the vehicle are added to one another.
7. (previously presented) The method as claimed in claim 6, wherein the image data is subjected to weighting before the addition.
8. (currently amended) The method as claimed in claim 7, wherein the volume which is represented by means of the ~~accumulated~~ accumulated 3D depth views is divided into individual volume elements within the scope of the weighting.
9. (previously presented) The method as claimed in claim 8, wherein all the volume elements correspond to a predefined uniform volume.
10. (previously presented) The method as claimed in claim 8, wherein the volume elements are stored in a tree structure, in particular in the form of an octree.
11. (previously presented) The method as claimed in claim 8, wherein the respective number of pixels within the individual volume elements is assigned to each of these volume elements as a weighting.

{WP430659;1}

- 3 -

Application No: 10/528,810  
Amendment A  
Reply to Office Action Dated 08/07/2007

Attorney Docket No: 3926.141

12. (previously presented) The method as claimed in claim 11, wherein a weighting is determined which corresponds to the average weighting of all the volume elements, this overall weighting forming a threshold value on the basis of which it is decided whether the pixels which are contained in the individual volume elements are taken into account in the further processing, wherein only those pixels at which the volume element assigned to them has a weighting which is equal to or greater than the threshold value are taken into account.

13. (previously presented) The method as claimed in claim 12, wherein only those volume elements which contain pixels are used to form the overall weighting.

14. (previously presented) The method as claimed in claim 12, wherein the threshold value is formed by multiplying the overall weighting by a tuning factor.

15. (currently amended) A device for 3D observation and measurement of the lateral environment of a vehicle, ~~mainly for detecting parking spaces~~, comprising a camera for recording a sequence of digital images which is connected to a data processing unit by means of which the images are provided with a time stamp and buffered,

wherein a unit for sensing the vehicle's own movement is provided, and

wherein a means for selecting image data on the basis of the vehicle's own movement in order to form chronologically overlapping stereoscopic image pairs is provided, and which is connected to a unit for stereoscopic image processing, and

only buffered images during whose recording the orientation of the camera has not changed significantly are selected to form image pairs.

16. (currently amended) The device as claimed in claim 15, wherein the unit for sensing the vehicle's own movement is, ~~in particular~~, a speedometer, wheel speed meter, navigation system or a vehicle movement dynamics system.

{WP430659;1}

- 4 -

Application No: 10/528,810  
Amendment A  
Reply to Office Action Dated 08/07/2007

Attorney Docket No: 3926.141

17. (previously presented) The device as claimed in claim 15, wherein the camera has a 90° orientation with respect to the direction of travel.
18. (previously presented) The device as claimed in claim 15, wherein the camera has an orientation of 45° - 135° with respect to the direction of travel.
19. (previously presented) The device as claimed in claim 15, wherein the camera is a component of an image recording system which is already located in the vehicle.
20. (cancelled).
21. (new) The method as claimed in claim 4, wherein the predefined value is 0.3 m.
22. (new) A method for observing and measuring the lateral environment of a vehicle,  
wherein a sequence of digital images are recorded by means of a camera, provided with a time stamp and buffered,  
wherein the vehicle's own movement is sensed in order to select chronologically overlapping stereoscopic image pairs from the buffered images on the basis of this data,  
wherein the position and orientation of the camera which are present at the two recording times are determined,  
wherein a local 3D depth image is generated on the basis of the image pairing by means of an algorithm for stereoscopic image processing,  
wherein the position and orientation of the camera at the recording times are taken into account within the scope of a synthetic stereoscopic geometry,  
wherein a sequence of local 3D depth views are accumulated, wherein the image data of the individual local 3D depth views which can be assigned to the same location points in the environment of the vehicle are added to one another,  
wherein the image data is subjected to weighting before the addition,

(WP430659;1)

Application No: 10/528,810  
Amendment A  
Reply to Office Action Dated 08/07/2007

Attorney Docket No: 3926.141

wherein the volume which is represented by means of the accumulated 3D depth views is divided into individual volume elements within the scope of the weighting, and

wherein the respective number of pixels within the individual volume elements is assigned to each of these volume elements as a weighting.

(WP430659;1)

- 6 -